1996 ANNUAL REPORT

DIVISION OF REMEDIATION

BUREAU OF REMEDIATION & WASTE MANAGEMENT

1996 brought a new look to the division starting with a simplified name change to the 'Division of Remediation' (DR). Reorganization was capped off with a new Division Director and the realignment of project staff into new units. The scope of the Division was expanded with the incorporation of the Federal Facilities Unit and the Petroleum Hydrocarbon Remedial Planning Unit. New units include a State Sites Unit, Federal /Superfund Unit, and a Site Assesment Unit. The Division happily retained the Closure and Remediation Unit which was expected to be reassigned to another bureau. Several Division staff members were lost to promotion. We thank them and wish them well.

SPECIAL PROJECTS AND WORK GROUPS 1996 ACCOMPLISHMENTS

In 1996, Division staff participated in the following special projects/work groups:

- Soil Cleanup Work Group
- TQM Facilitator Pool
- Member of Quality Council
- CERCLA Reauthorization Work Group
- Spill Site Tracking System Work Group
- Leaking Underground Storage Tank Action Team
- ASTSWMO Base Closure Task Force
- ASTSWMO Federal Facilities Subcommittee
- DEP/Consulting Engineers of Maine Task Force Sub-Group on Consulting
- Bureau Safety Advisory Committee
- Bureau Soil Sampling SOP Group
- Public Water Supply Investigation Group
- Employee Effectiveness Training Process Action Team
- Surface Water Discharge Work Group
- Soil Standards Implementation Work Group
- ESII Test Revision Group
- Tire Inspection Workgroup

POLICY AND PROCEDURES

During 1996, the Division continued to work on procedures and policy statements including:

- Technical Basis Statement and Background for Soil Cleanup Guidelines Based on Direct Contact
- Draft DEP Direct Contact Soil Guidelines
- Draft Memorandum of Understanding for Surface Water Discharge
- DEP Strategic Plan
- RCRA Corrective Action / VRAP Policy

UNCONTROLLED SITES PROGRAM

During 1996 the Uncontrolled Sites Program (USP) was divided into Federal Sites and State Sites Units. The Superfund section of USP merged with the Federal Facilities Program (formerly in the Office of the Commissioner) to form the Federal Sites Unit. This effectively placed all federally focused remedial programs together. The remaining States Section became the State Sites Unit. Even though implementing the change required some shifting of personnel and reassignment of projects the transition was accomplished smoothly and with minimal disruption.

The USP policy continues to have responsible parties undertake appropriate response actions. The goal is to achieve this through voluntary action, using enforcement only when necessary. When there are no viable responsible parties the USP seeks contributions from other interested parties and /or uses bond money to undertake remedial actions. In November 1996, Maine voters supported this program by passing a $2,500,000 bond request.

The following site-specific narratives represent highlights of the 1996 Uncontrolled Sites Program activities:

Corinna-Main Street (Eastland Woolen Mill), Corinna

The year 1996 proved to be one governed by significant events for the Corinna-Main Street site. In December 1995 the DEP was presented results of soil samples taken from the bed of the Sebasticook River just downstream from the Eastland Woolen Mill; these results showed concentrations of total chlorobenzenes in parts per thousand. This sampling was initiated by Eastland Woolen Mill upon discovery in late August 1995 of "pockets" of chlorobenzene while excavation was being done to lay pipes in the river bottom during waterline construction . During the last week of November 1995 the recently-formed Corinna Water District began supplying water to fourteen residences and businesses in the Main Street area of Corinna. These two events plus one other--the apparent final closing of the Eastland Woolen Mill on October 11, 1996--shaped the efforts of the DEP at this site during 1996.

With the water system operating, and the resultant loss of the hydraulic influence established by downtown residential well usage, it was feared that the groundwater contamination would radiate out from the center of town to appear in outlying water supply wells. To counter this, three steps were taken: first, two wells (loosely termed recovery wells) were selected for long-term continuous pumping; second, a residential well sampling program was conducted to assure that citizens remained free from the danger of contaminant spread in groundwater; and third, a pumping test was planned to determine hydraulic properties of the bedrock aquifer in proximity of the mill and the downtown area.

One of the recovery wells was an unused bedrock residential well located across Main Street from the mill. The second was a well in the mill parking area at the location where leaking underground storage tanks had been removed; these tanks and underlying soil were suspected of being sources of the chlorobenzene contamination in the bedrock. Both of these wells are operated by Eastland Woolen Mill (both wells continue to operate although the mill is not operating).

More than twenty residential water supply wells located on both sides of the Sebasticook River were sampled. Chlorobenzene was detected in five residential wells which previously had shown no detectable contamination. None of the contaminant levels were above action levels. All of the residential wells are located in a northeasterly direction from the Main Street area, corresponding to the approximate direction of major bedrock fractures. This seems to confirm fears that the hydraulic influence has shifted from the wells in the downtown area to outlying wells located in the general direction of the known bedrock fractures. Therefore, a residential well sampling program will be established to protect residents from the migration potential of groundwater contaminants.

A work plan for the pump test was developed with the following objectives: first, to examine hydraulic connections between two pumped wells and several homeowner wells; second, to determine hydraulic properties of the bedrock aquifer in the vicinity of the downtown area; and third, to decide on the feasibility of ground water containment through pumping of domestic wells. The DEP plans to implement this test in 1997.

In anticipation of removing the contaminated soils in the proximity of the recovery well in the mill parking lot, the project team conducted GeoProbe sampling on August 29 and 30 to resolve the vertical and horizontal extent of soil contamination. Analyses of soil samples showed that migration may have occurred vertically, but that horizontal contaminant migration has been minimal. A removal action is planned for the 1997 construction season.

Upon removal of the soil in the parking lot, the focus for investigative activities will shift to the riverbed and the tailrace under the mill. With pockets of high chlorobenzene contamination expected to exist in both places, these may be the largest continuing sources of contaminant supply to groundwater. A plan for investigation in these areas will be developed and the first phase of what most likely will be a complex study will be implemented during the 1997 construction season.

The closing of the mill, as a result of foreclosure by its lenders, has left within the Corinna area over 300 unemployed. In addition, the town itself has been left with enormous financial losses in uncollected taxes and service fees. For the DEP, at least three new conditions stand out: first, with the demise of the owners of the mill via bankruptcy, there is no longer a responsible party tied to this site and therefore no hope of cost recovery or cost sharing; second, environmental problems associated with what inevitably will become an abandoned facility must be initiated by the DEP; and third, the year-old Corinna Water District, previously funded entirely by Eastland Woolen Mill, is left with no source of revenue.

Much work remains to be done at the site. Environmental discoveries during 1996 and the unfortunate end of a long-term struggle for existence by the mill leaves the DEP with added responsibilities.

-- Larry Brown

L.E. MacNair Building Site, Houlton

The Department followed up an EPA Removal Action at the L.E. MacNair Building in Houlton by negotiating with Potential Responsible Parties (PRPs) in a series of meetings, conference calls and letters during 1994 and 1995, culminating in an Administrative Order by Consent (AOC) signed in May. The L.E. MacNair Building Site came to the attention of the Department in 1988 when opened and spilled containers of banned pesticides were discovered inside the building. Subsequent soil sampling revealed soil contamination with organic pesticides and very high levels of arsenic and lead.

The AOC called for the PRPs to conduct a Remedial Investigation to be followed by a full site remediation. It was agreed that the determination of remedial measures necessary to clean up the site and the drafting of contracts and oversight for the performance of these remedial measures would be carried out by the Department. Because of the "orphan share", i.e. lack of participation of the non-performing PRPs, and the fact that the performing PRPs were not, for the most part, directly involved in the operations of the L.E. MacNair pesticide mixing facility, the Department agreed to a "mixed funding" formula, whereby the Department assumed responsibility for funding a portion of any Risk Assessment and/or soil and groundwater remediation.

An additional provision in the AOC called for the transfer of ownership of the property among PRPs to allow for future use of the building. This arrangement provided a mechanism for future Operations & Maintenance (O & M) of the Site by the new owners and addressed the "brownfield" issue by assuring a useful function for the building. Unfortunately, a fire occurred in November which totally consumed the building. The new owners of the Site had just completed extensive building renovations and were using it for storage. The cause of the fire is still under investigation but is believed to be vandals.

The L.E. MacNair Building engulfed in flames on Nov. 1, 1966 shortly after the arrival of the Fire Department

The PRPs had previously contributed $875,000 to the $1.2 million EPA-led portion of the Removal Action for the cleanup of spilled pesticides inside the building. The PRPs funded and led the final portion of the Removal Action which involved pesticide and contaminated soil removal and fencing of the site.

The Department determined on the basis of data collected in the Site Assessment that groundwater remedial measures were not called for. Therefore, remediation was limited to capping areas of low-level arsenic and lead soil contamination adjacent to four building loading docks, and to capping an Artesian well suspected of transporting contaminants offsite to an adjacent stream.

The four areas of soil contamination were covered with asphalt in October and the Artesian well was closed in December to complete the site remediation. Other than O & M of the Site by the new owner, the responsibility of the PRPs under the AOC will be fulfilled with the Department's receipt of funds covering their share of the costs of remediation. -- Randy King

Dauphin Disposal Facility, Bath

The Dauphin Disposal Facility (Site) is located in Bath, Maine at 14 Spruce Street, and includes an 18 acre landfill Site

(eastern and western) which Eugene O. Dauphin, Jr. owned and operated as an automobile salvage and junk yard. In addition, used oils were stored in above-ground tanks. In the late 1960's the Site began accepting industrial wastes from Bath Iron Works, Inc. (BIW). The wastes at a minimum, consisted of general refuse, scrap metals, paint cans, drums of waste oils and hydraulic fluids, asbestos and sandblast grit.

BIW ceased shipment of waste to the Site in 1985 and submitted to DEP for review and approval a closure plan for the western landfill. The closure plan included provisions for installation of a clay cap and for quarterly monitoring of the groundwater in the Site vicinity.

In response to citizen complaints in 1986, the DEP sampled groundwater from eleven residential wells in the vicinity of the Site on Tarbox Hill. The analytical results documented concentrations of volatile organic compounds (VOCs) and metals above federal primary drinking water standards. BIW installed a public water line to these impacted residents in 1987.

The parcel containing the Site and all contiguous properties owned by Eugene O. Dauphin Jr. were designated an Uncontrolled Hazardous Substance Site under the Uncontrolled Hazardous Substance Site Law, 38 MRSA Chapter 13-B in 1988. BIW and Eugene O. Dauphin, Jr. were named as responsible parties. BIW purchased the designated property from Eugene O. Dauphin, Jr. which included the 18 acre landfill (eastern and western). Eugene O. Dauphin, Jr. retained his 3.5 acre residential property adjacent to the eastern landfill property boundary. BIW in cooperation with DEP contracted the design and construction of an 18 inch clay cap for the 11 acre western portion of the landfill. The eastern portion of the landfill remained an auto salvage yard.

Discussions resumed between BIW and the Uncontrolled Sites Program in early 1992. Due to the presence of hazardous substances in the groundwater, public concern, and unknown sources of the contamination in the landfill, BIW agreed to conduct a remedial investigation. Phase I of this investigation characterizing landfill waste material and groundwater contamination was completed in 1995.

BIW completed the Phase II Remedial Investigation in May of 1996 which evaluated impacts from the landfill on groundwater and soil on the Dauphin residential property and evaluated landfill leachate seeps and potential off site environmental impacts. Sediments in the cattail wetland were impacted by landfill leachate. Surface water samples collected at the outlet of the cattail wetland located at the southwest property boundary, exceeded State ambient water quality criteria for iron. The southeastern stream exceeded State ambient water quality criteria for iron and zinc.

BIW submitted to DEP the Focused Feasibility Study which evaluated and recommended an alternative to remediate the impacted wetlands at the southwest property boundary. The Remedial Action Objective is to meet State Ambient Water Quality Criteria (AWQC) at the present property boundary line.

The final closure design (June 1996) approved by the DEP for the eastern landfill eliminated dermal and inhalation exposure to the landfill soils and wastes and reduced infiltration of surface run-off. The 18 inch clay cap compacted to a maximum hydraulic conductivity of $5x10^{-7}$cm/sec reduced the contribution of hazardous substances to groundwater. Construction of the clay cap was completed in September 1996.

BIW submitted and the Department approv-

Final construction of the cap for the eastern landfill at the Dauphin Disposal Facility completed in September

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ed a report of completion of the landfill closure and its compliance with the design as approved.

-- Lynne Cayting

Brewer Junkyard Site, Brewer
(from Brownfield to Greenfield)

The Brewer Junkyard Site is located on Spring Street in Brewer, Maine. It encompasses approximately six acres and is situated between an industrial park and a residential neighborhood.

The Site has been used for industrial purposes since the turn of the century. A tannery and a wool processing plant first occupied the Site; the Brewer Junkyard facility was operated from the 1930's to 1991. The junkyard processed scrap metal, batteries, and other material from various sources, such as paper mills, railroads, garages, telephone and electrical utilities, corporations, and individuals.

The eastern portion of the Site was reported to be the location of most of the junkyard activities. There, scrap metal was sorted and stored, metal was reclaimed from transformers and stored, and lead was reclaimed from batteries. Casings from these batteries were distributed across the Site, both as general refuse and as fill material in the low areas. Metal reclamation activities were accomplished with little or no concern given to storage or proper disposal of the waste liquids, most of which ended up in the site soils or city sewer.

Site investigations, conducted in 1993 and concluded in 1994 identified concentrations of lead, nickel and polychlorinated biphenyls (PCBs) at or above regulatory limits in the soil and the groundwater. Based on those findings, remedies to mitigate the human health and environmental threats posed were explored and potentially responsible parties were identified. The DEP implemented an Administrative Order by Consent in December, 1995 that outlined the problems, the remedies and the responsibilities of all parties involved in the remedial action. The AOC teamed the responsible parties, the City of Brewer and the DEP to plan, fund and implement a remedy for the Brewer Junkyard Site.

A group of potentially responsible parties contributed funds to an escrow account established for that purpose, and the property was transferred to the City of Brewer. As Owner of Record, the city then made an application to the Voluntary Remedial Action Program (VRAP) to implement a remedial plan to redevelop the Site as a neighborhood baseball park.

The original conceptual plan called for removal of PCB contaminated soil, removal of metal scraps from the remaining soil, consolidation of the most highly contaminated lead waste and lead contaminated soil, placement of a "cap" that was designed as a recreational pad, and placement of a soil cover with a geotextile marker over the remainder of the Site.

Subsequent confirmation testing indicated that the quantity of waste was more extensive than originally estimated, making the original plan not feasible. Alternate remedial options were explored and the project team determined that installation of

a geocomposite cap would achieve an acceptable level of protection. The remedial design was re-worked and construction began in early September 1996.

Construction of the final cover at the Brewer Junkyard Site. Workers are placing the GCL geocomposite cap.

The remedial cap design consists of the following features: consolidation of the waste at the center of the Site; grading to a uniform 1.5% slope, using common borrow for fill; a one foot layer of bedding sand; placement of the geocomposite cap on the bedding sand; the inclusion of a drainage system with piping directly on the cap with a minimum of 6" of drainage sand to cover the piping; and a top layer of 14" of low permeability till covered by 4" of seeded loam.

The City of Brewer will construct the neighborhood park during the 1997 field season. Brewer will also maintain the facility in the future.

At the Brewer Junkyard Site, a contaminated and stagnant property located in the middle of a residential area of Brewer has been revitalized into an attractive public recreation area. This project represents DEP's commitment to the beneficial redevelopment of Brownfield sites.

-- Kathy Niziolek

STATE LEAD SITE CLEANUPS 1996 ACCOMPLISHMENTS

Remedial Actions

Remedial Actions include remedial design activities as well as the actual implementation of the remedial action. Remedial actions are classified as source control or management of migration (groundwater control) activities. In several cases the remedial action is complete, except for operation and maintenance or on-going groundwater monitoring.

Remedial Actions were completed at the following sites:

- D&S Bangor, Bangor
- Pinette's Salvage Yard, Washburn
- Van Buren Madawaska, Madawaska
- L.E. MacNair Building, Houlton
- Engineering Industries, Norway*
- Milmac, Unity*
- Peterson's Farm Store, Colby *
- Dauphin Landfill, Bath*
- Southern Maine Finishing, Waterboro*

* Source control remedial actions are complete at these sites, further groundwater remedial action and/or monitoring are on-going.

Source control/remediation activities were initiated at the Peterson's Farm Store in Woodland (Colby), the Brewer Junkyard Site, in Brewer, and Menard Property in Biddeford. A conceptual plan for closure and remediation of the Sanford Landfill has been approved by the DEP.

Remedial actions are underway at GE Bangor (Building 30), GTE-Waldoboro and Rumford National Graphics, Belfast. A State funded removal action was completed at Peterson's Farm Store site in Woodland (Colby).

Investigations

Site investigations are conducted to characterize a site; they include such things as identification of contaminant source areas, determination of the nature of contamination, description of probable

groundwater flow direction, and identification of potential receptors and potential pathways of offsite migration. A remedial investigation identifies and fills data gaps so that specific remedial alternatives can be evaluated. The risk assessment, performed in conjunction with a remedial investigation, is used to determine threats to human health posed by hazardous substances at a site, and can be used to establish clean-up goals. The feasibility study identifies remedial action alternatives, establishes the process for evaluating an acceptable remedial action and ultimately selects the "preferred alternative".

DEP Lead Site Investigations took place at Northeast Doran in Skowhegan, Corinna-Main Street, Corinna, Milmac Inc., Unity, and the Black's Tannery Site in Beddington. The investigation of groundwater contamination continued with sampling of monitoring wells at Aroostook State Farm in Presque Isle. DEP performed a preliminary source investigation at the former Portland Bangor Waste Oil Facility site in Casco. Source investigation was completed at the Robbins Property site in Ellsworth and at the Green Hill Quarry in Meddybemps.

The DEP contracted to conduct *Remedial Investigations* at the former Wilner Wood Products Company Site, and at the Portland Bangor Waste Oil site in Wells. A *State Lead Remedial Investigation* is ongoing at the Waterboro Patent Lagoons, Waterboro.

A *Risk Assessment* was conducted by the responsible parties for the New England Pole Site, Yarmouth and the risk assessment report was submitted to DEP for review.

Operations and Maintenance/Monitoring

Operation and Maintenance (O&M). O & M activities continued at the Miltonia Management Site in Acton which included inspections of the cap and lagoon dikes and sampling of nearby residential wells. O & M activities at the Saco Tannery Pits Superfund Site included inspection and repairs to the cover systems and fence, mowing the covers, quarterly groundwater monitoring, surface water, and sediment sampling. O & M continued at the Hows Corner Site including annual ground water monitoring, and monitoring the operations of the water system, now owned by the State and operated by the Plymouth Water District. Peterson's Farm Store, Colby and Engineering Industries, Norway had semi-annual residential and monitoring well sampling continued.

Residential Well Monitoring. Division staff continued to conduct periodic monitoring of groundwater in residential wells and, where necessary, maintained carbon filters in the vicinity of the following sites:

- Miltonia Management, Acton
- Southern Maine Finishing, Waterboro
- Portland Bangor Waste Oil, Wells
- Blackstrap Road, West Cumberland
- Boggy Brook Voc. Center, Ellsworth
- Robbins Property, Ellsworth
- Peterson's Farm Store, Colby
- Harris Road, Cumberland
- E. Baldwin Post Office
- Limerick Mill Site, Limerick
- Corinna-Main Street, Corinna

Division staff continued to oversee private parties' monitoring of residential wells in the vicinity of the following sites:

- Tex Tech Industries, N. Monmouth
- GTE Sylvania, Waldoboro

Division field staff assisted Technical Services staff with the investigation of numerous public drinking water supplies which had been referred by DHS due to contamination concerns. Sites investigated by Division field staff included:

- East Baldwin Post Office

Ground Water Monitoring. Division staff continued to conduct periodic sampling of monitoring wells at the following sites:

- Blackstrap Road, W. Cumberland
- Southern Maine Finishing**,** Waterboro
- Waterboro Patent Corp., Waterboro
- Aroostook State Farm, Presque Isle
- Peterson's Farm Store, Colby
- Engineering Industries, Inc., Norway
- Saco Tannery Pits, Saco
- Wilner Wood Products, South Paris
- G & L Machine, Paris
- Leeman Property, South Bristol
- Menard Property, Biddeford
- Vahlsing, Easton
- Central Chemical, Greene
- Allen's Garage, North Jay
- Seaway Boats, Route 202, Winthrop

Other Technical and Analytical Data. Division staff continued to review technical and analytical data submitted by other parties at the following sites:

- Brewer Junkyard, Brewer
- Dauphin Landfill, Bath
- Farwell Mill, Lisbon
- GE Buildings #10, #30, Bangor
- GTE Sylvania, Waldoboro
- Merrill Transport, Portland
- N. Berwick Mun. Garage, N. Berwick
- Rumford National Graphics, Belfast
- Tex Tech Industries, North Monmouth
- Menard Property, Biddeford
- Marine Trades Center, Eastport
- New England Pole, Yarmouth
- Hows Corner, Plymouth

Other Related Activities

Designations. The White's Wharf site in Biddeford was designated an Uncontrolled Hazardous Substance Site.

Negotiations with responsible parties were held for the Portland Bangor Waste Oil site in Wells, the White's Wharf site in Biddeford, the Menard Property in Biddeford, and the Northeast Doran Site in Skowhegan.

Meetings with municipal officials, the public and/or concerned citizens. Meetings were held in Bath, Brewer, Corinna, Sanford, Waterboro, and Yarmouth. Staff participated in the Rushton Street Task Force for the Sanford Municipal (Rushton Street) Landfill Site in Sanford and on the Pole Yard Advisory Committee in Yarmouth.

Agreements. An Administrative Order by Consent with responsible parties for the L.E. MacNair Building Site was executed providing for a remedial investigation, feasibility study and a site remediation.. A grant agreement was written to convey State funds to the City of Brewer to pay the unfunded remedial costs associated with capping the former Brewer Junkyard site.

Contracts were written to conduct remedial investigation activities at the Robbins Property site, Ellsworth, the Wilner Wood Products industrial landfill in South Paris and at the Portland Bangor Waste Oil site in Wells. Contract work was also performed at Seaway Boats, Winthrop and O'Connor Willow Street. Contracts were also written to conduct remedial actions at the Brewer Coal Tar, Brewer and at the L.E. MacNair site, Houlton.

Cost recovery funds were received pursuant to the North Berwick Municipal Garage Agreement, the Rumford National Graphics of Belfast Agreement, the Wilner Wood Products Agreement, and the GE Bangor Sites Agreement. Cost recovery action was initiated for funds expended by the Department for remedial oversight at the D&S Corporation Site, Bangor and for remedial activities at the L.E. MacNair Building Site, Houlton. Cost recovery efforts continue for Central Chemical Company, Greene and Southern Maine Finishing, Waterboro.

No further (State) action (NFA) required status was recommended at the Black's Tannery Site in Beddington. A decision document indicating no further action required was prepared for the former D&S

Corporation site in Bangor, and Menard Property in Biddeford.

Potential Responsible Party Search. A transactional database for the Portland Bangor Waste Oil Company sites used to identify potential responsible parties was completed, by the Contractor, and delivered to the DEP

A Notification of Potential Liability letter was issued for the Waterville Gas site in Waterville.

Institutional controls. Deed Restrictions were placed on the Menard Property Site, Biddeford and Restrictive Covenants were placed on the property deed for the former D&S Corporation site in Bangor.

New Sites assigned to project managers include the Portland Bangor Waste Oil Site, Casco and the Silvex Site, Gorham.

Requests for Proposals were distributed for the Portland Bangor Waste Oil Site, Wells; the Brewer Coal Tar site, Brewer

FEDERAL FACILITIES AND SUPERFUND PROGRAM

Project Managers in the Federal Facilities and Superfund Unit represent the Department and assure compliance with State standards, regulations, and guidelines at sites on the National Priorities (NPL) or "Superfund List", including two active and one former military installations. In addition, the unit coordinates the State's response to all environmental restoration activities at current and former military sites, including Formerly Utilized Defense Sites (FUDS), Army Reserve and Air National Guard Centers, radar installations, etc. Restoration activities range from underground tank removals and site assessments to corrective action, complex groundwater and soil remediation projects, community relations, negotiation of cleanup agreements, and other tasks. Selecting the most cost effective remedy while maintaining Maine's environmental standards is our top priority.

The following site narrative represents a highlight of 1996 Federal Facilities and Superfund activity:

Union Chemical Co., Hope

In 1967 the Union Chemical Co. Site (Site) in Hope, Maine, was founded in a former church building to manufacture a furniture finish remover. As an adjunct to the manufacture of furniture finish removers, in 1969 distilling equipment and a small solvent recovery unit were installed. The distillation capacity was later expanded to provide reclaiming and recycling services for other companies. Between 1967 and 1983, various other facilities were constructed and operated, including a plant building used for processing and solvent recovery, an incinerator used for the destruction of product residuals and still bottoms, warehouse used for drum storage, and numerous storage tanks. During its period of operation, the facility handled, repackaged, stored, and destroyed industrial solvents and organics.

In September 1979, the Maine Department of Environmental Protection (DEP) discovered that the ground water at the Site was impacted by chemical constituents from site operations. Subsequent investigations confirmed that organic chemical constituents were present in the soils and ground water at the Site. In 1985, the Site was nominated for inclusion in the National Priorities List (NPL), and formally included on the NPL in 1989.

The DEP secured the facility and took control of operations at the Site in June of

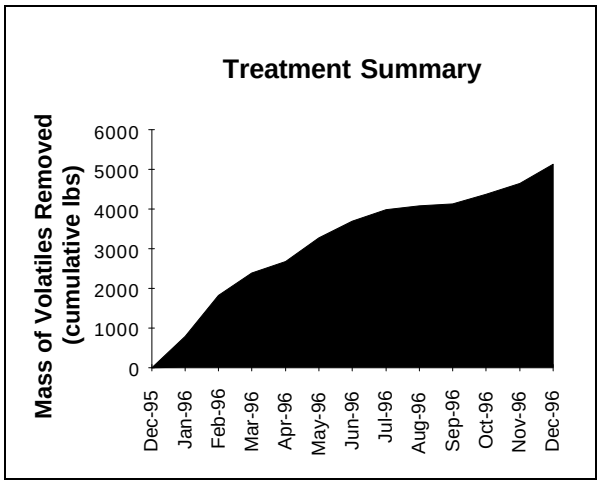
1984. At this time, the Site contained over 2,400 drums of waste plus 30 storage tanks holding in excess of 100,00 gallons of hazardous waste. The DEP and U, S. Environmental Protection Agency (EPA) conducted removal actions that properly disposed of the hazardous wastes. Additionally, the DEP installed and conducted sampling and analysis of monitoring wells, Quiggle Brook and area residential wells. The analytical results indicate that there was ground water contamination and that it was reaching Quiggle Brook. The compounds included 1,1,1-Trichloroethane, methylene chloride, trichloroethylene, and xylene.

A Remedial Investigation and Feasibility Study (RI/FS) was conducted and EPA issued the Record of Decision on December 27, 1990. The Consent Decree (Civil Action No. 91-0392-P-C) was entered June 16, 1992. The 1994 Explanation of Significant Difference (ESD) changed the remedial action for the soils treatment technology from Low-temperature Soils Aeration to in-situ Soil Vapor Extraction (SVE).

The remedial actions undertaken at the Site are: 1) Razing of the facility buildings; 2) Consolidation and capping of contaminated on-site soils; 3) Construction and operation of the treatment system; and 4) Evaluation of Off-Site Soils. The treatment system consists of a Management of Migration component (ground water extraction & treatment) and a Source Control component (soil vapor extraction & treatment). Approximately 100 wells (ground water, vapor extraction and hot air injection) were installed at the Site. The treatment system extracts contaminated ground water and vapor from below the ground surface, removes/destroys the contaminants and discharges treated water and air.

On-site meteorological data were collected, the data were modeled using an air dispersion model, and the air dispersion model output was evaluated to determine the location of potential off-site areas of soil contamination attributable to the operations of the UCC facility. Additionally, off-site soil samples were collected and analyzed. The analytical results indicate that off-site areas of contamination attributable to the operation of the UCC facility are not present.

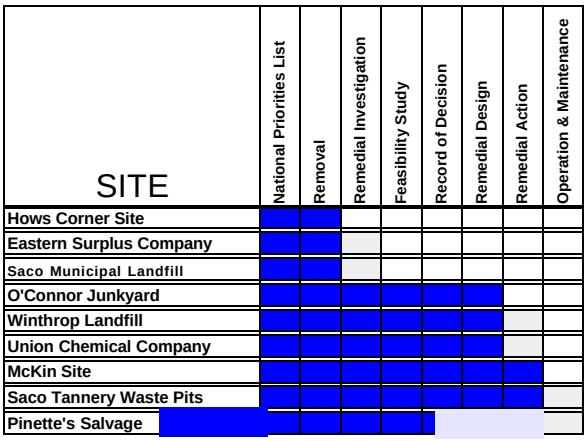
The treatment facility operated all of 1996 in "start up" mode, and over 5000 pounds of volatile organic compounds (VOCs) were removed by the end of the year as shown below:



Monthly cumulative total mass of volatile organic compounds recovered & treated at the Union Chemical Company Site in 1996

NON-MILITARY NPL (Superfund) 1996 ACCOMPLISHMENTS

Nine non military Maine sites appear on the NPL. Two - Saco Tannery Waste Pits in Saco and Pinette's Salvage in Washburn - are nearing the point where the EPA removes them from the list and the State takes over all remaining activity (primarily monitoring). Of the 7 remaining sites, remedial investigation planning has just begun at the How's Corner Site in Plymouth and the RI is underway at the Eastern Surplus Company Site in Meddybemps. The status of all non military NPL sites in Maine is summarized below:



Winthrop Landfill, Winthrop

In 1996, seep remediation consisting of removal and disposal of arsenic contaminated sediments took place as soon as lake levels dropped sufficiently. DEP continued to receive reports on the performance of the soil vapor extraction and groundwater extraction and treatment systems. Due to high groundwater levels, additional seeps developed on neighboring property. DEP responded to citizens concerns by explaining site circumstances, contacting the responsible party and monitoring their response to the concerned homeowner.

McKin Site, Gray

In 1996 DEP continued to grapple with the difficult problem of a technical impracticability (TI) waiver request from the settling parties and concern regarding the extent of solvent contamination leaving the site. DEP conducted several investigations of Royal River water quality and limited geological sampling to assess potential solvent levels on the opposite bank of the Royal River. An extensive review of two draft TI waiver documents was completed. Numerous meetings with responsible parties, consultants, trustees, DEP BLWQC, Friends of the Royal River, water districts, and others were held. DEP also provided information for the press on numerous occasions.

Eastern Surplus, Meddybemps

Remedial investigation work commenced in the summer of 1996. Sampling of on site soils, surface water and sediment in Meddybemps Lake and Denny River, and residential wells took place.

Saco Landfill, Saco

An Engineering Evaluation & Cost Analysis (EE/CA) was performed to identify the remedial options available for this site. The EE/CA resulted in an Action Memorandum being issued to the City of Saco that required the removal of soil and sediment arsenic hotspots, and the capping of landfill areas #3 & 4. Fieldwork started in December. Meanwhile, negotiations continued with the EPA, City of Saco, and other responsible parties to reach an agreement on funding and cleanup issues through an Administrative Order By Consent (AOC), and on landfill cap design through a Scope of Work and Technical Design Agreement. Financial assistance has been offered by the Department through the Municipal landfill Closure Bond. Other areas of the site were addressed through a previously signed Administrative Order by Consent, including the monitoring of groundwater on a quarterly basis.

O'Connor, Augusta

Both the Management of Migration Plan and the 100% design plan were finalized. Phase 1 of the Source Control Program was finalized and implemented - PCB and lead contaminated soil and an associated building were excavated and disposed of off site. Public meetings were held prior to and after Phase I of the Source Control to keep the public informed and solicit their comments. The sediment sampling plan for Riggs Brook was finalized and implemented. The groundwater continued to be monitored on a quarterly basis.

How's Corner, Plymouth

Initial EPA prescoping activities commenced with DEP oversight.

MILITARY SITES

1996 ACCOMPLISHMENTS

Defense State Memorandum of Agreement (DSMOA)

The Department has an agreement with the Department of Defense through which it obtains reimbursement for all costs associated with active and former military facilities. Through the DSMOA, DEP staff provide oversight, technical assistance and advice, and assurance that installation restoration activities are carried out in accordance with applicable state laws, regulations, policies and guidance. There are two components to the DSMOA program - NPL sites and Formerly Utilized Defense Sites.

NPL (Superfund) Sites

Two active Navy bases, Brunswick Naval Air Station and Portsmouth Naval Shipyard, and the former Loring Air Force Base, all appear on the NPL. Military bases greatly resemble small cities and industrial and waste disposal activities on base result in multiple areas of concern. Once potential sites - disposal areas, landfills, known contaminated areas - are located on a base, they are grouped into "Operable Units" to facilitate investigation and clean up.

Loring Air Force Base

DEP continues to work with EPA, the Air Force (through the Air Force Base Closure Agency), the Loring Development Authority, and local representatives through the *Restoration Advisory Board* and the *Base Closure Team*. All parties participate in a team approach to facilitate timely remediation and transfer of the base to private enterprise as soon as possible.

Records of Decision were signed for Operable Unit 3 (15 sites, ranging in size from 1 to 15 acres), Operable Unit 4 (groundwater influenced by landfills), and Operable Unit 9 (various industrial facilities). Before DEP concurred with these decisions, it made sure that state standards, guidelines and policies were being met.

Problems with the *free product recovery system* at the Fire Training Area were resolved by discharging treated water to a nearby ditch. DEP established the treatment requirements for discharge to surface water.

Corrective action for petroleum contamination continued in the form of bioventing and bioslurping systems at several areas on base including the 150 acre Nose Dock area, Auto Hobby Shop, and Fuel Tank Farm. Investigation of petroleum contaminated soils near Underground and Above Ground storage tanks and pipelines was completed in support of a *corrective action plan* to be implemented in 1997.

Removal Actions, including excavation of contaminated soil, cleaning of floors and drain lines, and disposal of hazardous wastes, were conducted by the Air Force with DEP approval and oversight at the Support Services Area, Nose Dock Area, Solvent Storage Building and Entomology Shop.

Landfill Caps were installed at Landfills 1 (5 acres) and 2 (15 acres) in accordance with DEP's solid and hazardous waste management rules. Landfill 2 wastes include some hazardous substances. DEP technical staff, engineers and project management staff inspected the landfills during the closure process.

DEP provided input on environmental information in support of *short term leases* of various facilities. Private parties leased the Malabeam Lake recreational area, Day Care Center, Laundry, Civil Engineering Shops, Nose Dock 44, and Presque Isle Housing. DEP provided environmental input for *property transfer* of the Caribou Family Housing and CEVG Site in Ashland

the status of all the Loring Air Force Base Sites is summarized in the following table:

Site Status - February, 1997
Loring Air Force Base Installation Restoration Program

OU	*SITE NAME*	*I*	*FS/EECA*	*PP/CAP*	*ROD*	*D*	*C*	*CLOSEOUT*
1	Low Level Radioactive Waste Sites	X	X	X	X	X	X	X
2	Landfill #2	X	X	X	X	X	X	
2	Landfill #3	X	X	X	X	O		
3	9000 Debris Area	X	X	X	X	X	X	X
3	Chapman Pit Debris Area	X	X	X	X	NA	NA	X
3	Contract Storage Shed (Bldg 7321)	X	X	X	X	O		
3	Demineralization Plant	X	X	X	X	NA	X	X
3	DRMO (Salvage) Yard	X	X	O	X	O		
3	Dumpster Cleaning Site (Bldg 7841)	X	X	X	X	NA	NA	X
3	EOD Area - Cylinders	X	X	X	X	NA	NA	X
3	EOD Range	O						
3	F-106 Crash Site	X	X	O	X	O		
3	Golf Course Maintenance Shed	X	X	X	X	NA	X	X
3	KC-135 Crash Site	X	X	X	X	NA	NA	X
3	Ohio Road Debris Area	X	X	X	X	X	X	X
3	Oklahoma Road Debris Piles	X	X	X	X	X	X	X
3	Old PX Gas Station	X	X	O	X	O		
3	Prime BEEF Debris Area	X	X	X	X	NA	NA	X
3	Small Arms/Grenade Range	O						
3	Solvent/Paint Dock Area	X	X	X	X	X	X	X
4	Landfills Area Groundwater	X	X	X	X	O		
5	BX Service Station	X	X			X	X	
5	Former Jet Engine Test Cell (old)	X	X			X	X	
5	Nose Dock Area	X	X	X		X	X	
5	South Services Area	O				X	X	
6	East Gate Waste Storage Tanks	X	X	X	X	X	X	X
6	Fuel Drop Site North 1	X	X	X	X	NA	NA	X
6	Fuel Drop Site North 2	X	X	X	X	NA	NA	X
6	Fuel Drop Site South (Active)	X	X	X	X	NA	NA	X
6	Fuel Drop Site South (former)	X	X	X	X	X	X	X
6	Railroad Maintenance Site	X	X	X	X	X	X	X
7	Quarry	X	X	X	X	X	X	X
8	Fire Training Area	X	X			X	O	
8	Underground Transformer Site	X	X			X	O	
9	Auto Hobby Shop	X	X	X	X	X	X	
9	Former Vehicle Motor Pool	X	X	X	X	X	X	X
9	Power Plant Drainage Pipe	X	X	X	X	X	X	X
9	Snow Barn	X	X	X	X	X	X	X
10	Entomology Shop (Bldg 8265)	X	X			X	O	
10	Pumphouse #1 (Bldg 8270)	X	X			X		
10	Pumphouse #2 (Bldg 8210)	X	X			X		
10	Solvent Storage Building	X	X			X	O	
11	Base Laundry	X	X			X	X	
11	Coal Storage Area	X	NA	X	X	NA	NA	X
11	Fly Ash Disposal Site	X	NA	X	X	NA	NA	X
11	Fuels Tank Farm	X	X	X	X	X	X	
11	Refueller Maintenance Service Area	X	X			X	X	
11	Vehicle Maintenance Building	X	X			X	X	
12	Basewide Groundwater	O						
13	Flight Line Drainage Ditch	O	O					
13	Basewide Surface System	O	O				O	
2A	Coal Ash Pile	X	X	X	X	X	X	X
2A	Landfill #1	X	X	X	X	X	X	O
7A	Receiver Site	X	NA	X		X	X	
NA	Bldg 1008 USTs	NA	NA	NA	NA	NA	NA	X
NA	Bldg 8719 Ammonia tank	NA	NA	NA	NA	NA	NA	X
NA	East Loring Landfill	NA	NA	NA	NA	NA	NA	X
NA	Madawaska Dam	O						
NA	Obar Road	O						
NA	UST/AST Sites	X	X	O	NA	O		

X - Complete
O - Underway
NA - Not Applicable

OU - Operable Unit
D - Design
C - Cleanup

ROD - Record of Decision
I - Investigation
PP/CAP - Proposed Plan, Corrective Action Plan
FS/EECA - Feasibility Study/Engineering Evaluation-Cost Analysis

Brunswick Naval Air Station
DEP participated in quarterly meetings of the *Restoration Advisory Board* with local officials, private citizens, Navy staff and the EPA.

The *Groundwater Extraction and Treatment Plant* continued to operate in 1996. DEP provided oversight of plant operations as well as extraction system efficiency and overall performance. Modifications were made to increase extraction well efficiency.

Long term monitoring to assess the adequacy of various response actions, including soil removals, continued basewide. Plans were made to examine all long term monitoring data to design the most cost efficient approach to monitoring for the future.

DEP continued to receive and evaluate reports of operation of the *Soil Vapor Extraction/Aquifer Air Sparging* remedial systems at the Navy Exchange Service Station. These systems were installed to address petroleum contamination from leaking underground tanks at the station.

We also provided input on the draft *Proposed Plans* for Sites 4, 11 and 13

Portsmouth Naval Shipyard, Kittery
DEP participated in bimonthly *Restoration Advisory Board* meetings with local officials, private citizens, EPA and the Navy. While the Shipyard is in Kittery, Maine it is close to Portsmouth, New Hampshire and RAB meetings are alternately held in both municipalities and the membership represents both communities.

In consultation with the Maine Department of Human Services, the Maine Department of Marine Resources and New Hampshire officials, DEP released an assessment of *seafood safety* in the Piscataqua River estuary due to influence from the shipyard. The study concluded that consumption of lobsters taken in the vicinity of the shipyard did not pose a greater health threat than lobsters taken in other Maine waters. Other shellfish - mussels, clams, etc. - cannot be taken from the estuary due to multiple contamination sources including the risk of bacterial diseases due to sewage contamination.

The Department participated in *On Shore/Off Shore Contaminant Fate and Transport Modeling*. The purpose of these studies is to evaluate the potential for ongoing releases from disposal sites on base to adversely impact the Piscataqua River estuary.

We recommended that the recreational facilities located on the *Jamaica Island Landfill* be kept out of use until we are satisfied that the landfill has been characterized and closed in accordance with State laws and regulations.

DEP participated in extensive training and review of the *Ecological Risk Assessment* for the Piscataqua River estuary.

We evaluated the Navy's Site Screening Process Plan, a process to prioritize sites on the base that have yet to be investigated.

Formerly Utilized Defense Sites (FUDS)

Historically, the Department of Defense owned and or operated numerous facilities throughout Maine for training, defense, surveillance, communications, and other uses. These sites range from prerevolutionary war forts on Casco Bay Islands to Nike missile sites installed for the defense of Loring Air Force Base. DOD has a mandate to identify the sites, address environmental risks, and take the appropriate response actions. DEP is the sole environmental regulatory agency overseeing these actions.

The following narratives profile highlights

of the 1996 FUDS program:

Former Fort Levett, Cushing Island, Portland (Casco Bay)
Fort Levett was located on Cushing Island in Casco Bay. The United States government operated the property for the coastal defense of Portland from 1884 until about 1954. At that time the property was sold to private individuals. The fort consisted of about a 140± acre parcel with five gun batteries and three anti-aircraft emplacements. Other buildings on the island included a hospital, central powerhouse, bake house, oil house, fire station, a reservoir and pump house, officer's quarters and officer's club. Most of these buildings have been converted into private residences.

In April 1996, the Army Corps of Engineers - New England Division (ACE), with oversight from DEP Federal Facilities Unit, removed nine underground storage tanks and two aboveground storage tanks in vaults from the former fort. These tanks were primarily associated with the gun batteries. Extensive discussions between the DEP, the ACE, and a representative of the island's residents took place prior to tank removal to ensure that the island's fragile roads would not be damaged by heavy equipment. During tank removal minor contamination of soil and groundwater, likely a result of a fueling overflow, was detected at only one tank. Two tanks were constructed of riveted steel indicating they were probably at least 60 years old. These tanks were in excellent condition considering their age.

The ACE installed a groundwater monitoring well in the location of the minor spill. Sample results indicated that petroleum is present in the groundwater at very low levels. Because of the low levels and the lack of receptors near the spill area (the residents of Cushing Island obtain water from Portland), the DEP believes there is no risk to residents from the overspill. However, in order to determine any changes over time, the ACE will sample the monitoring well again in the spring of 1997. Final closure of this site is expected in 1997.

Defense Fuel Supply Point (DFSP), Harpswell
DFSP is located on west side of State Hwy 123 on Harpswell Neck of Casco Bay, Town of Harpswell, Cumberland County. Built by the US Navy for use as a fuel storage and pipeline facility in 1952, it operated as a fuel support point for nearby Brunswick Naval Air Station until 1991. Fourteen above ground storage tanks had a holding capacity of approx. thirty three million gallons of av-gas, jet fuel, and diesel fuel. Also on site were fourteen underground storage tanks for gasoline, heating oil, and waste oil, and an intensive pipeline network. The associated support buildings and a leachfield remain in place. Currently, the DFSP is classified as an inactive federal facility.

During 1996, the Defense Logistics Agency (DLA), as most recent operator of the facility, continued their investigation of the impact the numerous spills, leaks, and discharges had on the site's soils, groundwater, surface water, and sediments. All fourteen ASTs, the remaining USTs, and associated onsite piping were cleaned, dismantled, and disposed of offsite. Petroleum contaminated soil collected from beneath the ASTs and around the piping was treated onsite. Test pits were performed & groundwater wells installed in the solid waste landfill area. The drinking water supplies of nearby residences were monitored. Two Public Meetings were held to keep the public informed and to solicit input. The following documents were reviewed:

- Scope of Work for BNAS Pipeline Investigations;

- Scope of Work for Biofeasibility Study;
- Scope of Work for Supplemental Investigations of Solid Waste (Landfill) Area;
- Results of Water Level & Quality Monitoring (ongoing bi-annual reports);
- Hydrogeological Site Assessment;
- Workplan for Sediment Sampling;
- Workplan for Supplemental Groundwater Sampling for Biological Indicator Parameters;
- Biofeasibility Study;
- Report of Findings and Remedial Action Plan for Main Gate Area.

The DLA, with oversight and approval of DEP, is preparing the site for transfer of ownership to the Town of Harpswell. Remaining problems to be addressed in 1997 include the main gate leachfield area, monitoring of impacted groundwater & surface water, and evaluation of cleanup standards once future use has been determined.

In addition in 1996, the following was accomplished at FUD sites:

Finalization of Chapter 691 *Site Assessments* were requested for the following sites:

- Caribou NIKE Launch Site
- Limestone NIKE Launch Site
- Connor NIKE Launch Site
- Fort Fairfield Outer Marker Site
- SNARK Missile Site (Presque Isle);
- Fort Preble (South Portland);
- Fort Gerrish Fire Control Station ` (Kittery).

Site Investigations (wells installed & sampled, soil sampled) at:

- Caswell Control Site
- Caswell NIKE Launch Site
- Perham Communications Annex
- Dow Pines Recreational Facility
- Former Helicopter Landing Pad, Bangor International Airport
- Maine Air National Guard Base, Bangor International Airport
- Laundry Annex (Presque Isle);

Removal Action was taken at:

- Long Island Fuel Facility
- Sere Landfill, Reddington TWP

Remedial Action was taken at:

- Long Island Fuel Facility

Response to contaminated drinking water well took place at:

- LO-58 NIKE Launch Site (Caribou)
- Downeast Correctional Facility

Property Transfer Process took place at:

- CEVG Radar Bombing Site (Ashland)

Underground Storage Tank removals took place at:

- Former Fort Levett, Cushing Island, Casco Bay (see details below)
- Two Lights State Park, Cape Elizabeth

Completion of work (installation & sampling of wells) took place at:

- Two Lights State Park, Cape Elizabeth

VOLUNTARY RESPONSE ACTION PROGRAM (VRAP)

In 1996, the VRAP Program added 23 new sites, to bring the program total to 76 sites. Of these 76 sites, 25 were remediated and/or resolved to the Department's satisfaction in 1996, to bring the total number of sites resolved to 57 since the inception of the program in December 1993. Remedial actions are completed at 4 other sites, with final resolution anticipated during early 1997. Nine sites currently have remedial actions in progress. The other six sites are awaiting further investigation and/or the development of remedial plans. The VRAP Program received $15,278 in fees in 1996.

The VRAP Program educated stakeholders at many conferences and meetings in 1996. In 1997, we plan to continue our education and outreach efforts in hopes of drawing more people to investment in potentially contaminated properties. The increase in applications to the VRAP Program indicates that people involved in real estate development may be recognizing the potential of "brownfields" opportunities.

The VRAP also plans to continue to meet with other state agencies in hopes of forming a multidisciplinary "brownfields" program which pulls together all the pertinent issues in a brownfields redevelopment project. In 1996, we had discussions with the State Planning Office (SPO), Department of Economic and Community Development, the Department of Transportation, the Attorney General's Office, and the Finance Authority of Maine (FAME) regarding their respective roles in brownfields redevelopment. Our efforts to form a brownfields program in the state mesh very nicely with SPO's Service Center Initiative and may aid their efforts to decrease urban sprawl.

Some specific site highlights of 1996 include:

Canadian Chains-Norridgewock

Downeast Woodcrafters, as a prospective purchaser of the property, hired Caswell, Eichler & Hill (CEH) to conduct environmental site assessments to determine if environmental liabilities existed from the previous operations at the Site. The Site previously housed a steel welding and fabrication company and a tire chain manufacturer. Canadian Chains was listed on both the state uncontrolled hazardous sites list and EPA's CERCLIS database, although the Site was given a "No Further Remedial Action Planned" (NFRAP) designation by EPA in April 1995. The Butler Welding & Fabrication Company, which purchased the property from Canadian Chains in 1990, operated until 1995, when they went out of business.

Previous manufacturing processes at the facility had contaminated soils, groundwater, and the septic tank with fuel oil, solvents, and metals. There were also numerous containers and drums at the property which were in various stages of deterioration. The area was serviced by private wells, leaving some well-owners vulnerable to migration of contaminants.

Once a remedial action plan had been negotiated and approved for the property, Downeast Woodcrafters secured a lender and purchased the property. Remedial actions began soon thereafter.

All containerized wastes were packed and/or repacked for appropriate disposal. Contaminated soils associated with sand-blast grit, fuel oil discharges and leaking containers/drums were excavated and disposed at appropriate

facilities. Contaminated sludges in the septic tank were removed and disposed. The tank was abandoned in place by filling it with concrete.

An extensive groundwater study has been completed in the area. Local wells were found to draw from one of two aquifers: a shallow, surficial aquifer underlain by an impermeable silt/clay, and; a deeper, bedrock aquifer. All those wells in the bedrock aquifer, including the onsite well, were free of contamination. The one well down-gradient of the property, which was located in the surficial aquifer, was contaminated with levels of fuel oil which were half of the regulatory limit. Downeast Woodcrafters agreed to continue sampling the wells to monitor effectiveness of the removal action and also agreed to replace or provide filters for those effected wells, if necessary. The subsequent sampling of the contaminated homeowner well (four months after the remedial actions) did not indicate the presence of any contaminants.

Downeast Woodcrafters, which began with 2 employees at this location in the spring of 1996, has now grown to 22 employees. They produce large volumes of wooden parts for use in other company's products and unassembled furniture for shipment to overseas clients.

Steven's Garage-Littleton

The Steven's Garage Site in Littleton first came to the Department's attention in 1981. The Site was listed on both the state uncontrolled hazardous sites list and EPA's CERCLIS database, and was the location of a vehicle salvage yard. Suspected contamination of soils with polychlorinated biphenyls (PCB) and metals had led to numerous investigations at the property by DEP and EPA.

Further sampling of the Site in 1995 by the DEP indicated that a small area of contaminated soil existed at the Site near an old waste-oil tank. Sampling of groundwater monitoring wells and the closest private wells did not indicate that these wells had been impacted by any contaminants. In August 1996, these soils were removed by the property owner and disposed of at an appropriate disposal facility.

Leaking waste-oil storage tank at the Steven's Garage Site showing contaminated soil in the foreground

Once remedial actions were completed at the Site, a local resident purchased the property and is redeveloping it for use as a snowmobile and tractor parts store.

The EPA has given the Site a "No Further Remedial Action Planned" (NFRAP) designation, based on their consultant's investigations and the cleanup of the Site under the VRAP Program's direction.

Westgate Mall-Bangor

The Westgate Mall was a rapidly failing retail mall located on Union Street in Bangor. Like many malls built during

the late 1960's, it was caught in the changing urban development patterns of the 1990's and the retail businesses located at the mall inevitably experienced failure.

The mall had many of the typical problems associated with retail use: underground and aboveground storage tanks for both fuel oil and gasoline, and; a dry-cleaner which was a listed small quantity generator of hazardous waste. The VRAP Program had to coordinate closure of the dry-cleaning facility with the state Resource Conservation and Recovery Act (RCRA) Program personnel, who are charged with ensuring proper closure of facilities which generate hazardous waste.

Necessary investigation and remedial activities were undertaken by the mall owner, N & J Westgate Trust, with the approval of the VRAP Program. The purchaser, Eastern Maine Healthcare, was the applicant to the VRAP Program and received the assurances from environmental liability.

Eastern Maine Healthcare is now renovating the mall to consolidate their offices, which are currently scattered in rental space throughout the city. The use of this property as an office ensures a sustainable redevelopment of the property which is not as subject to the unpredictability of retail development.

Through the cooperation of two bureau programs, the RCRA Program and the VRAP Program, the issues at this property were resolved in an exceptionally compressed time-frame, assuring successful completion of the real-estate transaction and subsequent redevelopment of the property.

Bug Light/GE-South Portland

The Bug Light/GE Site is located at Spring Point, South Portland, next to the "Bug Lite" lighthouse and public boat-launching ramp.

The Bug Light/GE Site at Spring Point, South Portland

The property had a history of commercial/industrial use dating back to the early 1940's. The last industry which operated on the property was General Electric, which manufactured heat exchangers until they abandoned the facility in 1983.

Environmental site assessments conducted by both St. Germain & Associates and Environmental Engineering & Remediation, Inc., did not indicate the presence of significant contamination of subsurface soils and groundwater at the property. The reports did, however, identify a number of "housekeeping" tasks which needed to be addressed before the property could be conveyed to the City of South Portland and the Portland Pipeline Corporation. The tasks included: the removal and disposal of a hazardous waste underground storage tank and contents; the removal of contaminated sand-blast from a paint spray area, and; the removal of PCB containing light ballasts. These tasks were completed by the property owner prior to the sale of the property.

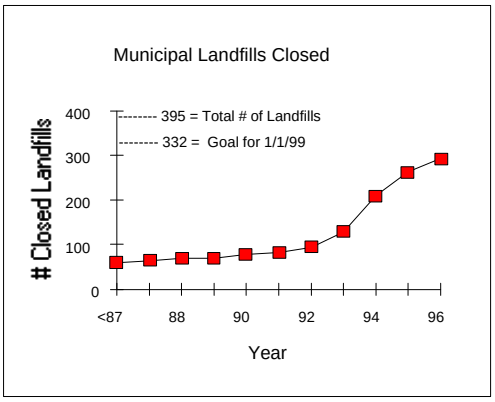
The City of South Portland plans to demolish the onsite building and use the property as a oceanfront public park.

LANDFILL CLOSURE & REMEDIATION PROGRAM

The Landfill Closure and Remediation Program has continued in its efforts to close all unlicensed municipal landfills. The Program has had the good fortune of receiving additional funding of $9,000,000 through the landfill closure portion of the November 1996 Environmental bond. Although this money was not available for closure operations in 1996, it has allowed the program to establish a budget for 1997 that will allow for continued progress towards closure of the State's identified municipal landfills.

Of the 395 municipal landfills identified in the State, a total of 285 landfill sites have been officially closed, as of December 31, 1996. Eleven are partly closed, and 99 remain to be closed. During the 1996 calendar year, it is estimated that a total of 40 landfill sites were closed. These figures will be officially tabulated during the January to February 1997 reimbursement process.

The program has identified approximately 20 sites that will complete final closure in 1997. Any remaining sites are expected to be either licensed operating sites not schedule for closure until after 2000 or non compliance sites that did not complete a specified site closure under DEP supervision.



Policy Changes:

As a result of new legislation in 1996, municipalities must close their landfill sites by January 1, 1998 in order to receive reimbursement support, unless the Department has agreed to an extension to the closure schedule. This extension can only be considered if technical reasons have resulted in a delay in the implementation of the closure.

With the expected phase-out of the reimbursement process and the declining number of landfills expected to close, the Landfill Closure and Remediation Program is expected to be cease operation on January 1, 1999.

Bond Funding Status:

Maine voters have approved 8 of 9 landfill closure bonds totaling $68 million. As of December 31, 1996, $59 million has been made available to the DEP.

The $59 million in bond funds made available to date has been allocated as follows:

- $44.7 million in direct payments to 284 municipalities as grants or reimbursements for closure work
- $11.7 million in payments to towns or State consultants for landfill evaluations and planning work
- $2.6 million remains to be spent but is committed to on-going Town reimbursements, consultant contracts, and encumbered grants.

Approval for DEP access to the remaining $9 million bond approved in November 1996 is pending. This bond will be allocated as follows:

- $5.8 million in direct reimbursement payments to 60 municipalities
- $2.7 million in grant payments to

support closure projects in 1997

- $0.5 million will be reserved to cover any unanticipated closure or remediation expenses.

Any remaining balance at the end of the 1997 construction season will be applied to direct payments to towns.

Reimbursement/Closure Status:

As of December 31, 1996, of the 395 municipal landfills officially identified in the State, a total of 285 landfill sites have been closed, eleven are partly closed, and 99 remain to be closed During the 1996 calendar year, an estimated 40 landfill sites were closed. However, these figures are currently being tabulated

The average cost per acre for landfill closures in 1996 was approximately $50,000/acre. Actual costs varied between $40,000/acre for minimal clay covers to $120,000 + /acre for composite cap covers.

The closure costs reported by municipalities as of December 31, 1996 total approximately $71.3 million. The State share of municipal closure expenses as of December 31, 1996 total approximately $56.4 million. In most cases the State has paid 75% of eligible expenses. Approximately 100 towns received $12.3 million in direct payments in 1996 for their landfill closures.

Based on available information, approximately 100 municipalities with identified landfills have yet to receive grants or reimbursements from the State and can be funded only through future bond issues in addition to the $68 million already approved. These additional closure costs to the State, including evaluation, design and capping for these landfills are estimated at $20 to $30 million. Total future closure costs are unknown but are estimated to average $60,000/acre to 75,000/acre due to a number of moderate to higher risk landfills needing higher levels of closure. The minimum cost to the State of capping all 395 landfills in the State is now estimated at approximately $86.7 million. Future remediation, additional evaluation expenses, and unanticipated reimbursement requests may occur and may add to the total closure costs, but cannot be realistically estimated at this time.

Of the 395 landfills identified by this program, some will not close and thereby benefit from the cost share program. It is estimated that approximately 11 sites will continue to operate until 2000-2015. An additional 40 municipalities may not close during the specified time period of the program and subsequently be classified as non-complying sites. Consequently, actual additional costs to the State for this program may actually approach $15 million.

The Landfill Closure and Remediation Program reviewed old municipal grant accounts established by towns for their landfill closure projects. This review has resulted in the return of $212,000 in unspent grant funds. These returned funds will be applied to other municipal landfill closures that occurred in 1996.

Selected Project Highlights

The ***Corinna Landfill*** evaluation and closure was a State-lead project in which DEP completed both site assessment and closure planning/design work through contracts with its own consultants. The five-acre landfill received a composite(FML/clay) cap this year, with 75% funding for the project supplied by DEP in the form of a Grant.

The State is also continuing with another full year of post closure evaluation monitoring of landfill monitoring wells and nearby homeowner water supply wells. The financial and technical assistance was greatly appreciated by the town, especially

considering the recent closing of the Corinna Woolen Mill.

Corina Landfill as it appeared before the FML/clay composite cap was installed this year

The site is considered a "high-risk" municipal landfill due to the history of industrial use, predominantly by the Woolen industry. MEG/MCL exceedences for arsenic, chromium, lead, mercury, Chlorobenzene and Benzene have been measured in ground water near the landfill. Eleven homeowner water supply wells are considered at risk due to their close proximity and the groundwater flow emanating from the landfill.

The Corinna Landfill following the installation of a FML/clay composite cap in 1996

The DEP and Town will need to keep a close eye on the site in order to determine the effectiveness of the cap and the possible need for additional remedial efforts.

The ***Paris Landfill*** underwent intensive State consultant assessment work due to the close proximity of the Paris Utility District public water supply wells. Final consensus was that the landfill did not pose high risks to the wellfield, therefore a standard earthen cap closure design was chosen for implementation at the site. The DEP funded 75% of the project through a construction grant.

During the final stage of the construction, the contractor unearthed a number of metallic drums and appropriately notified the town and the DEP. The situation was investigated, and 8 drums of hazardous wastes and 20 cubic yards of contaminated soils were removed by an independent contractor. Negotiations are still continuing as to additional efforts that may be required in terms of special venting in the area where the drums and soils were removed. The landfill site has been otherwise capped according to plans at this point. Post closure monitoring will need to be adjusted to reflect the possibility of future contamination by hazardous constituents that have not been removed from the landfill.

The 20 acre ***Wells Landfill*** was properly closed with a high quality earthen cap this year. An upgradient ground water intercept will be constructed during the winter to help eliminate the current situation where ground water flows through wastes, thus limiting the effectiveness of a cap by itself in terms of mitigating the contamination of ground water. The landfill is situated such that a leachate plume migrates toward the Webhannet River. The main contaminant of concern from the landfill, before closure, was Beryllium. Beryllium surface water concentrations were estimated at slightly less than the "chronic toxicity guideline" levels for the element. Offsite migration of contaminants is a concern due to the high potential that nearby property will be developed in the future.

The Department began Phase II investigations at the ***Westbrook Landfill*** in 1996. Previous use of the 20 acre municipal landfill by industry has caused

concern over possible hazardous waste disposal at the site. The DEP also awarded the City a grant for purposes of beginning closure planning for the landfill. Final assessment and beginning of the closure planning and construction are expected in 1997.

The Department has been working with Hartland in assessing the type and extent of contamination and risks posed by the ***Hartland Landfill***. There is concern over indications that the landfill received tannery wastes and that chromium and other constituents may be high in the vicinity of the landfill. Extensive vegetative kill areas have been noted around the landfill toe. Preliminary indications are that nearby home water supply wells are probably not being affected by the landfill. The closure will be complicated, since wastes were deposited in a previous granite quarry in groundwater, and there may be bedrock fractures running through the area.

The town of Lincoln received a grant award of $380,000.00 in 1996 towards completion of ***Lincoln Municipal Landfill*** closure project. This year of project construction and completion is the result of several years of work by the town and State towards this goal.

An aerial view of the Lincoln Municipal Landfill closure project completed in 1996

Intense evaluation of the landfill site area began in 1993, with two phases of ground water study by CEH, Inc. (Augusta, ME), which directed design of the cover system towards a composite cover design. In 1995 the consulting team of James Sewall Co. (Old Town, ME) and Richard Wardwell, P.E. (Orono, ME) developed the closure design for a composite system "on top", and low-permeability soil system "on the sides" of the 10 acre landfill. Sargent & Sargent, Inc., (Old Town, ME) completed the construction work in the fall of 1996. In addition to State involvement through the development of the closure plan and technical review, cost-sharing to date has been provided through reimbursement for closure costs, as well as grant money used for evaluation purposes. Expected reimbursement application by the town of Lincoln in January, 1997 should allow the state to complete the cost-share.

The City of Old Town has completed construction of the ***Old Town Municipal Landfill*** closure project this 1996 construction season. Evaluation work, including two phases of work in 1993 and residential well testing in 1994, was contracted by the State of Maine with Robert G. Gerber, Inc. (Freeport, ME). From the extent of ground water contamination, including potential influence on at least one nearby residential well, the City faced both landfill closure as well as responsibility for potential contamination to residential drinking water. The City hired Woodard & Curran, Inc. of Bangor, ME to develop a final closure plan and oversee closure construction work which began in 1995. The contract for closure construction project was won by Sargent & Sargent, Inc. of Old Town, ME. Earlier in 1995, the Department approved the closure standard as an alternative closure procedure, with the City's closure plan calling for a composite cover system for the approximate 12 acres of landfill. In addition, the Department was able to provide up-front cost-share money in the form of a $1.33 million dollar grant award for estimated costs in 1995. The final (total) cost-sharing application was

submitted by the City in December, 1996 for Department review early in 1997.

The ***Paris Utility District (PUD) Municipal Landfill*** closure project was completed in 1996, following several years of cooperative work with the Department. This project included extensive evaluation work of the site area under State contract with GZA, GeoEnvironmental Inc., of Portland, Maine. The State of Maine and PUD also agreed to a Consent Decree and Order in 1993, which also determined the schedule for the closure project. The approximate 18.5 acres of disposal site were then incorporated into a closure plan. As part of the participation of the project in our state cost-share program, the Department and PUD agreed to a $550,000.00 grant which provided 75% cost-share on eligible closure costs. Much of the construction work took place in 1995, the remainder of the project was completed in 1996. The Construction Record Report was received in August, 1996, and a post-closure monitoring plan is in place as the District monitors and maintains the covered site through the post-closure time period.

Evaluation projects initiated in 1996 at the ***Biddeford Landfill***, the ***Lisbon Landfill*** and the ***Norridgewock Landfill*** are to be continued into early 1997. Although Biddeford's landfill has undergone final closure construction, nearby water use has prompted evaluation work being conducted under State contract with Robert G. Gerber, Inc. Future City planning for use of land in the area of the landfill may reduce potential for water contamination in the area. Nearby homeowners and two public water supplies in mobile home parks have been incorporated in the study.

Although the Norridgewock town landfill has not been operated since before 1980, it is located only a few hundred feet from the municipal water supply. Emery & Garrett Groundwater, Inc. (Waterville, ME) has been contracted conduct a study to identify potential contaminant impact on the water supply from the landfill. Results from the study are expected in early 1997.

The Lisbon landfill has not yet been closed according to State standards, and has shown significant ground water impact from organic compounds at a monitoring well. A second phase of work is soon to be completed under contract with F.M. Beck, Inc. (Yarmouth, ME) to identify the potential problem better, as well as provide information for the town's closure plan design.

FEDERAL SITE ASSESSMENT PROGRAM

Staff within the Division submitted 15 site assessment reports to EPA under the Federal Site Assessment Program during 1996. Some of the site assessment investigations identified sites with environmental and human health impacts from hazardous waste. Others investigations identified sites with little or no hazards associated with them, which were removed from the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), concluding EPA's involvement with the site.

Site Inspections completed in 1996:

- Kerramerican Mine, Blue Hill

Site Inspections submitted but not finalized in 1996:

- Limerick Mill Complex, Limerick

Site Inspection Prioritizations completed in 1996:

- Waterville Gas Works, Waterville
- Fore River Transportation Park, Portland
- Central Maine Disposal Corp. Fairfield
- A. C. Lawrence, South Paris
- Cornwall Industries, East Baldwin

- Jewett Junkyard, Brunswick
- Rotary Park, Biddeford
- Industrial Box and Lumber, Parsonsfield

Site Inspection Prioritizations submitted in 1996 but not finalized:

- Baker Co., Sanford
- Lisbon Landfill, Lisbon
- Highmoor Farm, Monmouth
- Fayscott Co., Dexter

Hazard Ranking System placed on National Priorities List (NPL) in 1996:

- Eastern Surplus Co., Meddybemps

PETROLEUM HYDROCARBON REMEDIATION PROGRAM

Implementation of the State's Petroleum Hydrocarbon (Oil) Remediation Program is dispersed among four (4) Divisions which operate within the Remediation and Waste Management Bureau. The Remediation Division's Remedial Planning Unit (RPU) is comprised of three (3) staff who : 1) manage DEP clean-up activities at the state's highest priority oil contaminated sites, 2) provide management oversight for remedial contract procurement, and 3) develop, implement, and update systems which provide program staff with instantaneous status of all oil spill projects, expenditure, contract tracking, and computer-links other informational data-bases.

Program responsibility is shared with the Remediation and Waste Management Bureau's Technical Services, Response Services, and Underground Storage Tanks Licensing and Enforcement Divisions. In addition, we implement remediations at above-ground storage facilities, which are partially regulated by the State Fire Marshall's Office. Coordination, and communication among staff is critical in the implementation of the remedial program..

Project Management Successes

During 1996 the RPU has managed the long-term, remedial efforts at Thirty-one sites where petroleum hydrocarbons have impacted state drinking water supplies. RPU managed sites at geographic locations which range from Fryeburg in the south, to Lee Village in Penobscot County, to Rangeley in the western mountains, and to Jonesport, in downeast Maine.

With the help of other Bureau staff, including twelve engineers and geologists in the Technical Services Division, RPU staff are involved with two-hundred-and-ninety-eight sites, which are tracked via our many data bases. Bureau staff are based in the Bangor, Presque Isle, and the Portland Regional Offices. DEP operated remedial systems are employed at spill sites located on coastal islands, at town municipal garages, elementary schools, state and federal governmental facilities, marinas, sites of release from residential home heating oil spills, at motor carrier rollovers, and more-commonly at retail and wholesale oil storage facilities.

The remedial efforts undertaken at these sites range from soil excavation and soil stabilization efforts to complex and sophisticated product recovery systems. High technology remedial systems, which utilize complex engineering concepts, as well as low-tech, cost conscious, and scientifically creative approaches are being implemented.

Bureau staff have closed out hydrocarbon contamination remediations at two hundred-and-one sites located throughout the state. The Oil Remediation Program provides Point of Entry (POE) water filtration systems, and the Quarterly Hydrocarbon Contamination Monitoring Program (QM) for private drinking water supplies. This program protects contaminated residents from exposure to petroleum hydrocarbons.

The following facts summarize the QM program. One-hundred-fifty-two gasoline contaminated households are supplied with DEP funded water filtration systems. The Bureau maintains Seventy-three POEs at residents with fuel oil contamination. Additionally One-hundred-fifty-four residents with threatened water supplies participate in the water quality monitoring (QM) program. This year One-hundred-forty-five water supplies have been added to our QM program, while One-hundred-and-four water supplies have had the POE and QM removed. The entire system including POE rental and the QM program is operated at a cost of approximately $202,000.00.

Another aspect of the program is the construction of publicly operated water systems. Water utilities are built in areas where remediation, and single well replacements would not be effective. In 1996 the program has completed the construction, initiated design, modified existing utilities, and has provided operational subsidies for four (4) municipal drinking water supply systems for the town's of Exeter, East Pittston, Dresden Mills, and Tenants Harbor.

These three Towns have assisted with our work, and currently these local municipal entities are operating the public utilities. Most recently the DEP has completed the Dresden Mills Water System, which supplies drinking water to 26 residents whose private water supplies had been, or were considered to be threatened by contamination.

RPU staff, assisted by Technical Services staff, and construction engineers, and hydrogeologists are initiating the search for an alternative drinking water supply for the impacted residents of Tenants Harbor village. Currently 38 households are contaminated with petroleum hydrocarbon compounds.

Contracting & Procurement

FASTRACK Consultant List. RPU staff have spearheaded the ongoing efforts to maintain a Consultant's List for DEP. This list is used when Bureau staff require Hydrogeological Investigations, or Remediations at contaminated sites. Evaluation of these firms is conducted by a board of three staff, who manage environmental contracts. Contracts are awarded on a rotational basis from this list of ten firms. Thirty-seven FASTRACK contracts are currently being administered by program staff, with a net worth of greater than $527,000.00.

In developing last years FASTRACK list, we determined that an additional list of thirty-two prequalified consultants would be maintained. Only work that has been conducted by DEP prequalified firms can be submitted for reimbursement via the Groundwater Oil Clean-Up Fund, thereby adding some greater level of DEP control over the remedial process throughout the state.

New DEP Remediation Contract. RPU staff have been instrumental in the development of new state contracting language which will be used for all environmental remediation contracts. This new procedure, which is still in development, should streamline the hiring of contractual work at our sites. Additionally, we are involved in developing "Retainer-Type" contracting mechanisms for frequently used special services.

The Bureau's project managers currently administer Eighty-six contracts for DEP-led remediations. Most of these contracts are considered small public improvement projects, and Bureau of General Services contracts are utilized.

Informational Systems

In 1996 the Oil Remediation Program has

expanded its use of computers and computerized data management systems. Bureau staff have access available to the Internet, are inter-linked to staff in every Regional Office , and can instantaneously share electronic data. All Program staff have Electronic Mail capability. And Finally, we have implemented the Spill Site Tracking System (SSTS).

SSTS is the result of a multi-year effort which involved all program staff. We met with representatives of all aspects of the program, and incorporated the comments and suggestions into a Request for Proposal for software development. SSTS provides the user with an ability to track valuable information, including site activities, project decision points, priority ranking, contract management, funding, and expense tracking. It will link other data base systems within the DEP, and future plans include a connection to the Health and Environmental Laboratory (HETL.) SSTS remains a relatively new data management system, with ongoing modifications, and performance improvements being performed.

Education & Outreach

Bureau staff are active in providing educational seminars, field demonstrations, and public informational meetings throughout the state. RPU staff have conducted seven Public Informational Meetings for effected residents, where DEP-led remediations are being undertaken.

In addition other local residents, municipal government officials, contractor and responsible party training has been provided by program staff. Technical Services staff are quite active in promoting the exchange of remedial and technical expertise, which include co-hosting with the Consulting Engineers of Maine (CEM) the third annual Consultant's "Lessons Learned" Conference.

Members of the Division of Remediation 1996

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Mark Hyland

Site Assessment Unit
- Nick Hodgkins — Unit Leader
- Jean Firth

Federal Facilities and Superfund Unit
- Denise Messier — Unit Leader
- Ann Melville
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- Tom Benn — Unit Leader
- Chris Swain
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Field Support Unit
- Gordon Fuller — Unit Leader
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